

Drawing Amendments

Please amend Fig. 5 as reflected in the attached replacement sheet for Fig. 5.

Remarks

Claims 1, 5-8, 12-15, 19, 20 and 21 have been amended. Claims 2-4, 9-11 and 16-18 have been canceled. Reconsideration and allowance of the pending claims are respectfully requested.

Oath/Declaration objection

The Office Action objected to the oath or declaration because it does not identify the foreign application for patent or inventor's certificate on which priority is claimed pursuant to 37 CFR 1.55. Since one of the inventors, Suresh Nagarajan, is on sabbatical leave and will not be back until July 29, 2009, Applicant has submitted herewith a Supplementary Application Data Sheet based upon page 10 of Application Data Sheet Guidelines from the USPTO (Note: Providing foreign priority information in the Application Data Sheet constitutes the claim for foreign priority required by 35 U.S.C. 119(b) and 37 CFR 1.55(a)). A new declaration signed by the inventors in compliance with 37 CFR 1.67(a) will be submitted right after the inventor is back from the Sabbatical.

Drawings objection

The Office Action objected to the drawings. In particular, the Office Action indicated that Fig. 5, element 510, the word "memroy" should instead read "memory".

Applicant has submitted herewith a replacement sheet of Fig 5 in compliance with 37 CFR 1.121(d), in which the word “memory” is corrected.

Acknowledgement of reference cited by Applicant

The Office Action acknowledged the information disclosure statements submitted by Applicant on November 24, 2006 and March 12, 2008. Since Reference WO 2006/133597 from the information disclosure statement (IDS) dated March 12, 2008 has not been considered due to page 2 of the publication being blank, Applicant resubmit the reference and acknowledge that the date of resubmission will be the date of submission for purposed of determining compliance with the requirements based on the time of filing the statement under 37 CFR 1.97(e).

Claims Rejections Under 35 U.S.C. 101

The Office Action rejected claims 15-21 under 35 USD 101 due to being directed to non-statutory subject matter. Applicant has amended subject matter of each of claims 15-21 into **a machine readable storage device**, which would cover tangible embodiments as disclosed in the specification as well as other tangible embodiments that are apparent to a skilled person. Applicant respectfully requests reconsideration and withdrawal of the present rejection.

Claims Rejections Under 35 U.S.C. 112

Claims 3, 4, 7, 10, 11, 17 and 18 rejections

The Office Action rejects claims 3, 4, 7, 10, 11, 17 and 18 because there is insufficient antecedent basis for limitation “the sequence table” in the claims. Applicant has canceled claims 3-4, 10-11 and 17-18. Applicant further amended limitation “sequence table entries” in independent claims 1, 8 and 15 into “entries of a sequence table”, so that limitation “the sequence table” in claim 7 has sufficient antecedent basis. Reconsideration and withdrawal of the present rejection are respectfully requested.

Claims 6, 13 and 20 rejections

The Office Action rejects claims 6, 13 and 20 because there is insufficient antecedent basis for limitation “the data fragment” in the claims. Applicant has amended “the data fragment” into “a data fragment of the data fragments”, so that the limitation has sufficient antecedent basis from independent claims 1, 8 and 15. Reconsideration and withdrawal of the present rejection are respectfully requested.

Claims 6, 13 and 20 rejections

The Office Action rejects claims 6, 13 and 20 because limitation “allocating a data fragment header associated to the data fragment in the non-volatile memory prior to writing the data fragment to the non-volatile memory” self-contradicts. Applicant

respectfully submits that “in the non-volatile memory” describes “a data fragment header” rather than “the data fragment” (See DFH261’ of Fig. 2 and Fig. 4d, block 502 of Fig. 5 and their relevant descriptions in the specification). In order to avoid misunderstanding, Applicant has amended it into “**allocating a data fragment header in the non-volatile memory** prior to writing a data fragment of the data fragments to the non-volatile memory, **wherein the data fragment header is associated to the data fragment**”. Reconsideration and withdrawal of the present rejection are respectfully requested.

Claims 7, 14 and 21 rejections

The Office Action rejects claims 7, 14 and 21 because limitation “allocating a sequence table header associated with the sequence table in the non-volatile memory prior to writing the sequence table to the non-volatile memory” self-contradicts. Applicant respectfully submits that “in the non-volatile memory” describes “a sequence table header” rather than “the sequence table” (See STH 221’ of Fig. 2 and Fig. 4c, and block 507 of Fig. 5). In order to avoid misunderstanding, Applicant has amended it into “**allocating a sequence table header in the non-volatile memory** prior to writing the sequence table to the non-volatile memory, **wherein the sequence table header is associated with the sequence table**”. Reconsideration and withdrawal of the present rejection are respectfully requested.

Claims Rejections Under 35 U.S.C. 103

The Office Action rejects claims 1-21 under 35. U.S.C. 103 as being unpatentable over See et al. (US PAT. 6,226,728) in view of DeMarco et al. (US PAT 5,566,314). Applicant respectfully requests the rejection of claims 1-21 be withdrawn for the following reasons.

As discussed in M.P.E.P 2143.03, to establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Claims 1-7 and 15-21 rejections

Each of claims 1 and 15 recites **writing** the sequence table **from the volatile memory to the non-volatile memory** at least one of when the sequence table is full and **when writing the data fragments to the non-volatile memory is completed**.

Instead, See teaches a method of storing data with different structures in a nonvolatile memory. According to the method of See, if data size is larger than a threshold (e.g., maximum single instance size), the data is fragmented. Then, one or more sequence tables storing the order and locations of the data fragments are stored in the non-volatile memory. As conceded in the Office Action, See does not teach store the sequence tables in a volatile memory, not saying of writing the sequence

tables from the volatile memory to the nonvolatile memory at least one of when the sequence table is full and when writing the data fragments to the non-volatile memory is completed. See focuses on storing variable sized data (e.g., codes and data) in the same nonvolatile memory rather than storing in different nonvolatile memories, in order to efficient manage storage capacity.

DeMarco teaches a method of storing data files in a nonvolatile memory. When modifying an old data file, a new data file is stored in another location of the nonvolatile memory, and a file pointer locating the old data file is modified so as to locate the new data file. DeMarco further teaches that the file pointer can be stored in the nonvolatile memory or a volatile memory. However, DeMarco does not teach writing the file pointer from the volatile memory to the nonvolatile memory, not saying of writing a group of file pointers (equivalent to a sequence table having a plurality of entries) from the volatile memory to the nonvolatile memory at least one of when the group of file pointers are full and when writing the data fragments to the non-volatile memory is completed.

See aims to solve a problem of avoiding waste of excess storage of nonvolatile memories, by storing variable sized data (e.g., codes and data) in the same nonvolatile memory rather than in different nonvolatile memories. DeMarco aims to solve a problem of damaging the nonvolatile memory, by storing new data in a previously unused cell array in order to update old data in a cell array. However, neither See nor DeMarco talks about reducing time of writing entries of a sequence

table for locations of data fragments into a nonvolatile memory by updating the entries of the sequence table to a volatile memory, and then writing the sequence table from the volatile memory to the nonvolatile memory when the sequence table is full or when writing the data fragments to the nonvolatile memory is completed.

Applicant respectfully submits that writing entries of the sequence table in the volatile memory and then writing the sequence table from the volatile memory to the non-volatile memory, especially, when writing the data fragments to the non-volatile memory is completed, i.e., when a transaction is completed (See transaction indicator of Fig. 2 and its relevant descriptions, and claims 5, 12 and 19), can help to save file writing time, because a transacted write performing multiple fragment writes can help to reduce bit twiddles and words programming as illustrated in Fig. 6.

Since neither See nor DeMarco teaches or suggests **writing** the sequence table **from the volatile memory to the non-volatile memory** at least one of when the sequence table is full and when writing the data fragments to the non-volatile memory is completed, the combination thereof does not meet the requirements of an obvious rejection. Applicant respectfully request the present rejection of claims 1 and 15 be withdrawn.

Applicant would like to emphasize that the preceding paragraphs were not intended to attack See and DeMarco separately. But instead, Applicant has shown how each is devoid of claimed elements so that, by default, the combination is also devoid of at least some of the features of Applicant's claimed invention.

Each of claims 2-7 and 16-21 includes one of claims 1 and 15 as a base claim. Accordingly, each of claims 2-7 and 16-21 is at least allowable for the reasons noted above.

Further, the Office Action points that term “if” of claims 3, 4, 17 and 18 denotes an optionally recited limitation and optionally recited limitations are not guaranteed to take place. Applicant respectfully submits that claims 3, 4, 17 and 18 have been amended and added into claim 1 or claim 15, wherein term “if” has been changed into “when”. Moreover, limitation “writing the sequence table having the sequence table entries to the non-volatile memory” of claims 3, 4, 17 and 18 has been changed into “writing the sequence table **from the volatile memory** to the non-volatile memory”, which Applicant believes is neither taught nor suggested by the combination of See and DeMarco for the above-stated and following reasons.

Moreover, Applicant respectfully submits that each of claims 5, 12 and 19, which recites that **updating a transaction indicator** in the non-volatile memory prior to writing a transaction to the non-volatile memory; and updating the transaction indicator in the non-volatile memory after writing the transaction to the non-volatile memory, wherein **the transaction comprises the data fragments and the sequence table**, is neither taught nor suggested by the combination of See and DeMarco.

The Office Action appears to rely on element 1816 of Fig. 18, element 1940 of Fig. 19, and elements 1820 and 1824 of Fig. 18 of See for the teaching of claims 5, 12

and 19. Applicant respectfully submits that the above citations teach allocating and validating a sequence table fragment header and a data fragment header, rather than a transaction indicator for a transaction including data fragments and the sequence table, as requested by claims 5, 12 and 19. See teaches away from the present patent application, in which See does not teach the transacted write, for example, if a power loss happens after the transaction for writing the file is started, but before the transaction ends, parts of the file which have been written to the non-volatile memory may be deleted automatically by the power loss recovery feature (See paragraph 0024 of the present patent application). In light of this, the combination of See and DeMarco neither teaches nor suggests each of claims 5, 12 and 19.

Claims 8-14 rejections

For similar reasons proffered for claims 1-7 and 15-21, claims 8-21 each recites **write the sequence table from the volatile memory to the non-volatile memory** at least one of when the sequence table is full and **when writing the data fragments to the non-volatile memory is completed**, is neither taught nor suggested by the combination of See and DeMarco. Applicant respectfully requests the present rejection of claims 8-14 be withdrawn.

Conclusion

The foregoing is submitted as a full and complete response to the Official Action. Applicant submits that the application is in condition for allowance. Reconsideration is requested, and allowance of the pending claims is earnestly solicited.

Should it be determined that an additional fee is due under 37 CFR §§1.16 or 1.17, or any excess fee has been received, please charge that fee or credit the amount of overcharge to deposit account #02-2666. If the Examiner believes that there are any informalities, which can be corrected by an Examiner's amendment, a telephone call to the undersigned at (503) 439-8778 is respectfully solicited.

Respectfully submitted,

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Date: June 18, 2009

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